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10/719,347	11/21/2003	David Shortt	5589-06700 P1252	3303
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DAFFER MCDANEIL LLP			MALEVIC, DJURA	
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AUSTIN, TX 78768			ART UNIT	PAPER NUMBER
			2884	

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Please find below and/or attached an Office communication concerning this application or proceeding.

UK

## Office Action Summary

Application No.

10/719,347

Applicant(s)

SHORTT ET AL.

Examiner

Djura Malevic

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/13/04</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless –*

*(b) The invention<sup>2</sup> was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

Claims 1-3, 5-18, 20-29, 31-35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Nikoonahad *et al.* (US Pub. 2002/0093648 A1).

With regards to claim 1, Nikoonahad discloses a method for inspecting a specimen, comprising the steps of directing ultraviolet light to a specimen [0167 – 0168], detecting light scattered from the specimen at a specific selected wavelength [0167] and detecting features, defects, or light scattering properties of the specimen using signals representative of the detected light [0014].

With regards to claim 2, Nikoonahad discloses the ultraviolet light comprises nearly monochromatic ultraviolet light [0168].

With regards to claim 3, Nikoonahad discloses methods including detecting reflected light or scattered light from the specimen, thus not detecting fluoresced light in this particular method [0167].

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With regards to claim 5, Nikoonahad discloses methods detecting light with a selected wavelength such that the light fluoresced from the specimen is detected [0331].

With regards to claim 6, Nikoonahad discloses that the wavelength ranges comprises wavelengths shorter than a wavelength of ultraviolet light [0198].

With regards to claim 7, Nikoonahad discloses detecting the light comprises detecting the light scattered from the specimen with a plurality of channels, and wherein the light detected by the plurality of channels may have different selected wavelength ranges [0176 - 0176].

With regards to claim 8, Nikoonahad discloses a plurality of channels arranged at different collection angles, wherein one channel may have ultraviolet light and the other may have light fluoresced from the specimen [0176, 0331] (Fig. 4 and Fig 5).

With regards to claim 9, Nikoonahad discloses a plurality of channels comprising a plurality of detectors arranged at different collection angles [0176 – 0177].

With regards to claim 10, Nikoonahad discloses detecting light comprising light scattered from the specimen with a plurality of channels, wherein the plurality of channels are arranged at different collection angles, and wherein the light detected by said channels may have the same selected wavelength range [0176].

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With regards to claim 11, Nikoonahad discloses a plurality of detectors may detect reflected light or scattered light from the specimen, thus not detecting fluoresced light [0167, 0176].

With regards to claim 12, Nikoonahad discloses wavelength ranges of the plurality of channels selected such that the detected light comprises light fluoresced from the specimen [0176 – 0177, 0331].

With regards to claim 13, Nikoonahad discloses further classifying the features or defects using signals representative of the detected light (Summary of the invention) [0178, 0267].

With regards to claim 14, Nikoonahad discloses a method for inspecting a specimen comprising directing ultraviolet light to a specimen [0167 - 0168], detecting light scattered from the specimen with a plurality of channels with a plurality of detectors [0176 - 0178], and detecting features defects, or light scattering properties of the specimen using signals representative of the detected light [0176 – 0178].

With regards to claim 15, Nikoonahad discloses classifying the features or defects using signals representative of the detected light (Summary of the invention) [0178, 0267].

With regard to claim 16, Nikoonahad discloses a method for inspecting a specimen comprising directing light to a specimen [0167- 0168] and detecting features, defects, or light scattering properties of the specimen [0176- 0178]. Nikoonahad further discloses that a plurality of detectors (multiple detectors) may be coupled to a plurality of energy sources. In this matter, each detector may be

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positioned with respect to each energy source such that the detector may be configured to detect incident energy from the specimen. The plurality of detectors may include the same or different detectors. Therefore, using the configuration of multiple detectors, Nikoonahad discloses that one detector may be utilized to capture reflected light or scattered light propagating from the surface of the specimen and another may be utilized to capture fluorescence of the specimen, thus separately the first detector may have a wavelength range selected such that the first portion does not include light fluoresced from the specimen and separately the second detector includes light fluoresced from the specimen.

With regards to claim 17, Nikoonahad discloses incident wavelengths are selected to stimulate fluorescence emission from one or more materials on the specimen [0331].

With regards to claim 18, Nikoonahad discloses that one or more incident wavelengths are ultraviolet wavelengths [0167 –0168].

With regards to claim 20, Nikoonahad discloses detecting a third portion of the light scattered from the specimen, wherein a wavelength range of the third portion is selected to include wavelengths shorter than the one or more incident wavelengths [0012].

With regards to claim 21, Nikoonahad discloses detecting a third portion of the light scattered from the specimen, wherein a wavelength range of the third portion is selected to include light fluoresced from the specimen at wavelengths different than those of the second portion [0042, 0331].

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With regards to claim 22, Nikoonahad discloses classifying the features or detects using an intensity of the first portion, intensity of the second portion, or a combination of the two [0101].

With regards to claim 23 and 36, Nikoonahad discloses detecting performed in non-confocal mode [0019].

With regards to claim 24, Nikoonahad discloses the invention may be utilized in darkfield mode [0019].

With regards to claim 25, Nikoonahad discloses an inspection system comprising an illumination subsystem configured to direct ultraviolet light to a specimen [0167 –0168], a channel configured to detect light scattered from the specimen having a selected wavelength range [0167], and a processor configured to detect features, defects, or light scattering properties on the specimen using signals that are representative of the detected light [0014].

With regards to claim 26, Nikoonahad discloses the inspection system of claim 25 further comprising a plurality of channels arranged at different collection angles [0176 –0177].

With regards to claim 27, Nikoonahad discloses the inspection system of claim 25 further comprising a plurality of channels, wherein the plurality of channels are arranged at the same collection angle [0176 –0177].

With regards to claim 28, Nikoonahad discloses the inspection system of claim 25 further comprising a plurality of channels, wherein the plurality of channels comprises different types of detectors [0176 –0177].

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With regards to claim 29, Nikoonahad discloses the inspection system of claim 25 further comprising a plurality of channels, wherein the plurality of channels comprises the same types of detectors [0176 – 0177].

With regards to claim 31, Nikoonahad discloses the inspection system of claim 25, wherein the plurality of channels comprises spectral filter wherein, the spectral filter are selected based on one or more materials of the specimen [0170 – 0171].

With regards to claim 32, Nikoonahad discloses detecting reflected light or scattered light from the specimen, thus not detecting fluoresced light [0167].

With regards to claim 33, Nikoonahad discloses the wavelength range is selected such that light fluoresced from the specimen is detected [0331].

With regards to claim 34, Nikoonahad discloses the wavelength range comprises wavelengths that are shorter than a wavelength of the ultraviolet light [0198].

With regards to claim 35 Nikoonahad discloses a plurality of channels configured to detect light scattered from the specimen having a various selected wavelength ranges [0168, 0176].

With regards to claim 37, Nikoonahad discloses the illumination subsystem form a darkfield optical subsystem [0012].

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



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*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

Claims 4, 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nikoonahad.

With regards to claim 4 and 19, Nikoonahad discloses the inspecting systems as claimed in claim 1 and 16, but does not expressly disclose detected light scattered from the specimen, wherein the detected light has a wavelength range comprising of wavelengths within about 1nm to about 10nm of the wavelength of the ultraviolet light (source). However, it would have been obvious at the time the invention was made to a person of ordinary skill in the art that detecting scattered light from a specimen would always include detected light within a relatively small range of the light source and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With regards to claim 30, Nikoonahad discloses the inspection system as claimed in claim 25 but does not expressly disclose two separate channels comprising a bandpass filter, an edge filter or a notch filter. However, Nikoonahad discloses that a plurality of channels may include spectral filters [0170], which is known in the art to include bandpass filters, edge filters and notch filters.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include bandpass filters, edge filters or notch filters, since it is conventionally used in that environment in view of what is well known.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tsai *et al.* (US Pub. 20020054291), Vaez-Iravani *et al.* (US Patent 6,618,134 and US Patent 6,538,730), Okawauch (20020105636) and Almogy *et al.* (US Patent 6,657,714) all teach sample-inspection systems.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Djura Malevic whose telephone number is 571.272.5975. The examiner can normally be reached on Monday - Friday between 8:30am and 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571.272.2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Djura Malevic**  
**Patent Examiner**  
**Art Unit 2884**  
**571.272.5975**



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